

Space Weather Forecast

Issued on Wednesday, 01 June 2022 at 13:24 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales <https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales>

Space Weather Forecast Headline: Slight chance of R1/R2 Radio Blackouts.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Very Low, with no significant activity. There are five regions on the Earth-facing disc, four of which have been numbered. The most notable is a region that has rapidly grown in the last 12 hours, and was the source of a recent background class flare, although this region currently remains relatively small and magnetically simple. The other regions are smaller, simple and mostly stable, although new region developed in the southeast. No Earth-directed coronal mass ejections (CMEs) have been analysed in the last 24 hours, however a central disc filament eruption was observed to have an associated coronal dimming, and will likely be the source of a weak Earth-directed CME. This will be assessed once sufficient imagery is available.

Solar Wind / Geomagnetic Activity: The solar wind has been elevated, but with a declining trend due to a waning fast solar wind. The total magnetic field carried by the solar wind has been weak, with the important north-south component also varying weakly. Geomagnetic activity was Quiet to Unsettled.

Energetic Particles / Solar Radiation: The count rate of solar energetic particles (high energy protons) remained at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to be Low or Very Low, with a slight, but decreasing chance of Moderate activity from a sunspot close to the western limb.

Solar Wind / Geomagnetic Activity: A CME which left the Sun on the 23rd, whilst expected to miss, has a low chance of glancing across Earth on the 1st. There is also the chance of a weak Earth-directed CME from a filament eruption arriving towards the end of the period, however this needs further analysis. Otherwise currently slightly elevated to elevated solar winds are expected to gradually ease. Geomagnetic activity is forecast to be Quiet with a decreasing chance of isolated Unsettled spells, but a slight chance of Active intervals from any weak CME arrivals day 1 (1st) and towards the end of the period.

Energetic Particles / Solar Radiation: The count rate of solar energetic particles (high energy protons) is forecast to remain at background with no solar radiation storms occurring.

Geomagnetic Storms:

Geo-Magnetic Storm	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Minor or Moderate	G1 to G2	No	5	1	1	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability			(%)	(%)	(%)	(%)
Active	R1-R2 M Class	No	15	15	10	10
Very Active	R3 to R5 X	No	2	2	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms	Level (cm ⁻² sr ⁻¹ s ⁻¹)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Active	≥ S1	No	2	2	2	2
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = cm⁻²sr⁻¹s⁻¹)